

FAUNA OF THE GLEN ROSE FORMATION

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THE AUTHOR'S PERMISSION

THESIS

Presented to the Faculty of the Graduate School of

The University of Texas in partial fulfill-

ment of the Requirements

For the Degree of

MASTER OF ARTS

Approved:

By

Marion Isabelle Whitney, B.A.

(Austin, Texas)

Austin, Texas

June, 1931

Approved:

Dean of the Graduate School.

May 29, 1931

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PREFACE

Since there is in preparation an extensive work on the fauna of the Glen Rose formation by Dr. Whitney, this paper includes only a few of the species contained in the formation. The material was collected mainly from Comal, Hays, Travis and Bandera counties by Dr. Whitney, and the type specimens of the new species which have been described in this paper are in his collection.

The writer wishes to express her appreciation to Dr. Whitney for doing the photographic work, for the helpful suggestions offered, and for the use of his collections and library.

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Vismarzen (A. Roemer Verst. des Nordd. Oolith. Geb. Tab. XI, Fig. 26) from the upper Jurassic (Portland chalk) at Hildesheim, and they are differentiated, however, in that the keel, which is separated

DESCRIPTIONS OF SPECIES

Mollusca

Gastropoda

Nerineidae

Genus Nerinea Defrance

Nerinea texana Roemer

Plate III Figure 5 ap.

Plate II

Figure 1

Nerinea sp. indt. F Roemer

Texas, p. 412, no pl.

Nerinea sp. indt. Roemer

Nerinea texana Roemer pl.

Die Kreidebildungen von Texas, p. 41, pl. IV, Fig. 7.

Nerinea sp. indt. Roemer

The following is a translation from Roemer's description of Nerinea texana:

"The following is a translation from Roemer's description in Die Kreidebildungen von Texas.

"Shell elongate, turreted; the whorls in the cast separated by a spiral groove; nearly one third of the entire width of the whorl consists, in its lower portion, of a keel-like part; the upper, larger portion of the whorl, quite flat and even, and is so applied to the lower part of the preceeding whorl that the latter is scarcely prominent.

Of this species there are, at hand, a dozen specimens preserved as casts. These casts most resemble those of Nerinea known by A. Roemer (Nordd. Oolith. Geb. Tab. XI, Fig. 27).

visurges (A. Roemer Verst. des Nordd. Oolith. Geb. Tab. XI, Fig. 26) from the upper Jurassic (Portland chalk) at Hildesheim, and they are differentiated, however, in that the keel, which is separated from the remainder of the whorl, is smaller and less sharply angled than in the Jurassic species as well as by the lesser width of the groove. groove seen broader than

Locality: Not common at Fredericksburg, also in a place high on the Pedernales river with the following species." of the Pedernales."

Dimensions: Width 35 mm., spiral angle 5° , sutural angle 15° .

Nerinea roemeri n. sp.

Plate II

Figure 1

Affinities: The shell is very elongate and slender.

Nerinea sp. indt. Roemer hand, which is only about one half Texas, p. 412, no pl.

Nerinea sp. indt. Roemer

material in length. It is closely related to Nerinea Espalliana

Die Kreidebildungen von Texas, p. 41, pl. IV, Fig. 8.

The following is a translation from Roemer's description, namely, that in N. Espalliana the whorls are broader in proportion to their length than in N. roemeri. The pattern of

"Shell elongate, turreted, the whorls of the cast consist of two parts separated in the middle by a groove in which two almost equally sloping surfaces come together. This points out that the outer part of N. Espalliana is much more prominent than the others and is sharply truncated. This compressed specimen preserved as a cast, is related through the concave almost equally divided whorls of the cast to Nerinea gosae by A. Roemer (Nordd. Oolith. Geb. Tab XI, Fig. 27)

of the upper Jurassic, yet it seems in the Texas species the division of the whorl by the middle groove is not so complete as the former species. Under the species of the Cretaceous come the casts of Nerinea Espaillaciana D'Orbigny, L. C., pl. 164, Fig. 2 that is very near to the cast, at hand, from Texas. But the whorls divided by the groove seem broader than in the Texas species.

Locality: With the former species on the upper course of the Pedernales."

Dimensions: Width 35 mm., spiral angle 5° , sutural angle 15° .

Affinities: The shell is very elongate and slender. The longest specimen, at hand, which is only about one half preserved, measures over 20 cm. and thus may attain many centimeters in length. It is closely related to Nerinea Espaillaciana d'Orb. except in the respect which Roemer pointed out, namely, that in N. Espaillaciana the whorls are broader in proportion to their length than in N. roemerii. The pattern of the plaits in these species is very similar, there being one plait on the outer lip and two on the inner lip. D'Orbigny points out that the outer plait in N. Espaillaciana is much more prominent than the others and is sharply truncated. This holds true for N. roemerii, but in addition to the three plaits there seems to be a faint notch about midway between the pos-

terior and anterior plaits on the inner lip. Although the pattern of the plaits is, in general, similar in the two species, there is a difference in the proportion of the lobes. In N. Espaillaciana the posterior lobe is larger than the anterior lobe, whereas in N. roemeri this condition is reversed, the anterior lobe being the larger; also the distance between the anterior and posterior lobes is greater in N. roemeri. Both species are tightly coiled about small columellas. The spiral and sutural angles, and the angles of the whorls are practically the same for the two species.

Localities: Near Wimberly on Dripping Springs road.

Bandera, Smithson Valley, and Fischer's Store. The anterior

row is closer to the edge of the whorl than the posterior

row. The suture is a fine distinct line occurring in a

Nerinea pedernalis n. sp.

narrow, raised portion formed between the whorls by an abrupt

Plate III Figure 3

thickening of the posterior part of one whorl and a less

Nerinea sp. indet. Roemer anterior part of the adjacent whorl.

The Die Kreidebildungen von Texas, P. 41, pl. Iv, Fig. 9.

The following is a translation of Roemer's description: smaller, less prominent and acutely angled.

"Shell awl shaped, elongate, almost cylindrical, numerous whorls closely placed together. In the cast each whorl appears divided by a groove and cleft into two quite separated parts. The two parts of the whorls unequal; the

lower the smaller. *Perinca somaliensis* n. sp.

This species, of which the cast appears to be wound by two separate spiral lines, agrees in regard to the reduction of the shell and of the parts of the whorls in the casts with the picture of *N. longissima*, Reuss Verst. der Bohm. Kreidef. Tab. XLIV, Fig. 3.

Locality: Two casts were found on the upper courses separated by low flattened troughs. Lips with three plaits, of the Pedernales river."

When Roemer described this species, he evidently had only the cast. Recently there have been found specimens in present. Suture distinct.

which the shell is preserved, showing four rows of minute tubercles about equally spaced from each other. The anterior row is closer to the edge of the whorl than the posterior row. Dimensions: Width 6 cm., length 12 cm., sutural angle 10°, spiral angle 10°.

Locality: From the Glen Rose at Smithsonian Valley. The suture is a fine distinct line occurring in a narrow, raised portion formed between the whorls by an abrupt thickening of the posterior part of one whorl and a less marked thickening of the anterior part of the adjacent whorl. The columella is small. There are three plaits: one on the outer lip; large, prominent, and truncated; two on the inner lip; smaller, less prominent and acutely angled.

Locality: Crane's Mill; Fischer's Store Road.

Nerinea comalensis n. sp.

Plate I I

Figure 1

Description: Shell large, elongate, turreted. Whorls twice as broad as high, divided into equal parts by a groove; the posterior flat, the anterior rounded, raised above the posterior, giving the appearance of large, rounded beads separated by low flattened troughs. Lips with three plaits, one on the outer, oblique angled; two on the inner lip, the posterior oblique angled, the anterior acute angled. Columella present. Suture distinct.

Dimensions: Width 6 cm., length 12 cm., sutural angle 10° , spiral angle 10° .

Locality: From the Glen Rose at Smithson Valley. This species has but one acute angled plait. In general, however, the pattern of the plaits has a quite similar appearance in the two species. Also this species has more whorls for the length of the shell and a proportionately narrower anterior end than Nerinea comalensis.

Dimensions: Length 11 cm., width at base 5 cm., spiral angle 14° near base and 25° near top, sutural angle 12° .

Locality: From the Caprinula bed on the Guadalupe River, four miles below Hancock. Also at Granes Mill.

Nerinea hancockensis n. sp.

Plate I

Figure 2

Description: Shell elongate, turreted, large whorls consisting of two parts divided by a groove, the posterior flattened or very slightly rounded and the anterior decidedly rounded and extending from one to three millimeters beyond the other. Shell with columella. Aperture with one acute angled plait on the outer lip and two acute angled plaits on the inner lip. The angle of spire changes from 25° near the posterior end to 13° in about the seventh or eighth whorl from the posterior end. Suture distinct.

Affinities: This species differs from Nerinea comalensis in having three acute angled plaits, whereas the other species has but one acute angled plait. In general, however, the pattern of the plaits has a quite similar appearance in the two species. Also this species has more whorls for the length of the shell and a proportionately narrower anterior end than Nerinea comalensis.

Dimensions: Length 11 cm., width at base 5 cm., spiral angle 14° near base and 25° near top, sutural angle 12°

Locality: From the Caprinula bed on the Guadalupe River, four miles below Hancock. Also at Crane's Mill.

Nerinea guadalupae n. sp.

Plate III

Figure 2

Description: Shell elongate, turreted. Shell material preserved in part and marked by lines of growth extending diagonally across the whorls, forming small nodes at the suture lines. Whorls with a narrow rounded basal portion and a wider flattened upper portion in the cast. Externally the whorl reaches its greatest concavity a little above the middle, rising slightly toward the apex and considerably toward the base, thus projecting beyond the succeeding whorl and causing the suture to fall in a receding angle beneath the overhanging anterior portion of the whorl. Inner lip with two folds; outer lip with one. Suture a thin distinct line.

Affinities: This species resembles Nerinea gigantea d'Orbigny of the Neocomian of France in general shape and pattern of plaits, but the specimen at hand is much smaller and has a different spiral angle. It also resembles Nerinea dilata d'Orbigny, the spiral angle being more nearly the same as in this species than in N. gigantea.

Dimensions: Length 5 cm., width at base 2 cm., sutural angle 9° , spiral angle 22° .

Locality: From arenaceous beds of Glen Rose near the top of the cliff on the Guadalupe River on the New Braunfels-Hancock road near Sattler.

in having the same Nerinea cuyleri n. sp., the proportion of the height to the Plate III the wh Figure 6 somewhat different in the two shells. Since the specimen, at hand, is poorly

Description: Shell small, elongate, turreted. Whorls preserved in arenaceous material, the pattern of the plaits twice as broad as high; scarcely increasing in size; sides can not be distinguished, so the determination of the species concave with strong elevation of the posterior and anterior margins, forming rounded ridges with the suture, which is a thin distinct line, slightly posterior to the crest of the ridge; ornamented by strong, oblique lines of growth.

Locality: Cow Creek, crossing at B. M. 843.

Dimensions: Width 1 cm., spiral angle 11° , sutural angle 11° .

Locality: Cow Creek crossing at B. M. 848.

Nerinea sellardai n. sp.

Plate III

Figure 4

Nerinea cfr circumvoluta Cragin

Plate III

Figure 1

Description: Shell elongate, slender, turreted. Whorls as broad as high. not increasing noticeably in height, marked by oblique lines of growth. Sides straight, with an abrupt thickening of the posterior margin of the whorl forming a narrow rounded ridge and giving the appearance of each whorl slightly overlapping the preceding whorl. Suture distinct.

Affinities: This shell resembles N. circumvoluta Cragin, U.S.G.S. Bull. 266, p. 97, in external appearance and

in having the same spiral angle. However, the proportion of the height to the breadth of the whorls is somewhat different in the two shells. Since the specimen, at hand, is poorly preserved in arenaceous material, the pattern of the plaits can not be distinguished, so the determination of the species will have to be left until better material can be obtained.

Dimensions: Width 8 mm., spiral angle 5° , sutural angle 28° .

Locality: Cow Creek, crossing at B. M. 848.

Nerinea sellardsi n. sp.

Plate III Figure 4

Description: Shell elongate, very slender. Whorls nearly as broad as high; scarcely increasing in size, sides slightly concave, rising at the anterior and posterior margins in narrowly rounded ridges with the sutures, a thin indistinct line at the crest of the ridge; ornamented with three rows of small, rounded tubercles, two rows on the posterior side and one on the anterior side of the whorl about centrally spaced between the second row and the anterior margin, and farther from this margin than the posterior row from its adjacent margin.

Dimensions: Width 4 mm., spiral angle 3° , sutural angle 21° . . . Plate II Figures 3

Locality: Cow Creek, crossing at B. M. 848.

Nerinea simondsi n. sp.

Plate II Figure 2

Description: Shell elongate, slender, probably measuring many centimeters in length. Whorls two-thirds as high as broad, sides concave with broadly rounded ridges at the sutures formed by the gentle elevation of the whorl. Suture indistinct. Columella present. Lip with three plaits, the outer plait large, prominent and truncate; the inner plaits less prominent and terminating in acute angles. Ornamentation consists of low irregular nodes along the sutural ridges.

Dimensions: Width at base 26 mm., spiral angle 1.5° , sutural angle 26° .

Locality: From the Guadalupe River below Hancock.

Nerinea boernensis n. sp.Platanus II with Figures 3

Description: Shell small, elongate, slender. Whorls slightly broader than high, divided by a groove into unequal parts; the anterior being slightly larger than the

Description: Shell small, elongate, turreted. Whorls broader than high, ornamented with four faint rows of minute tubercles, the posterior row prominent and close to the aperture with one plait on the outer lip and two on the inner suture line, the second row also prominent and close to the lip. Suture distinct.

Affinities: This species resembles N. roemeri in general appearance, but the angle of divergence of the two parts of there is a slightly raised ridge. Suture distinct. Whorls its whorl is 165° , whereas in N. roemeri it is 112° . More-flaring slightly on the posterior side, projecting beyond the over, the aperture in N. boernensis is proportionately preceding whorl, and causing a stair-step effect in the arrangement of the whorls. Aperture broadly oval and drawn into a lip.

Dimensions: Width 6 mm., spiral angle 6° , sutural angle 12° .

Dimensions: Height 20 mm., width at base 7 mm., spiral angle 10° , sutural angle 13° .

Locality: From the Glen Rose on the Boerne-Comfort road, 10 miles from Boerne.

Locality: From a clay bed in the Glen Rose 1.4 miles north of Dripping Springs.

Cerithi Cerithiidae n. sp.

Genus *Cerithium* Bruguer

Description: *Cerithium haysensis* n. sp. whorls twice as

broad as high; Plate IV with figures 4 tric bands minutely

Description: Shell small, elongate, turreted. Whorls

and distinct; the second row raised above the other rows

broader than high, ornamented with four faint rows of minute

tubercles, the posterior row prominent and close to the

suture line, the second row also prominent and close to the

first row, the third and fourth rows very indistinct, Just

the fourth row prominent and very similar to the first r

beneath the curve on the bottom of the last formed whorl

there is a slightly raised ridge. Suture distinct. Whorls

flaring slightly on the posterior side, projecting beyond the

anterior row; the posterior and anterior rows of tuberoles

preceding whorl, and causing a stair-step effect in the arrangement of the whorls.

ment of the whorls. Aperture broadly oval and drawn into a

twisted canal at the anterior end.

Dimensions: Height 20 mm., width at base 7 mm., spiral

whorl. Suture distinct. Aperture oval and drawn into a

angle 10° , sutural angle 13° .

Locality: From a clay bed in the Glen Rose 1.4 miles

north of Dripping Springs.

Cerithium gardnerae n. sp.

Plate IV ~~Figure~~ Figure 3

Description: Shell small, elongate, whorls twice as broad as high; ornamented with five concentric bands minutely tuberculated; the posterior row prominent, tubercles rounded and distinct; the second row raised above the other rows and wider, tubercles large, irregularly rounded, fused together and indistinct; the third row in a depressed area, tubercles small, low, irregularly rounded and somewhat fused; the fourth row prominent and very similar to the first row, but with smaller tubercles; following this is a wide depression and finally the small flaring, irregularly tuberculated anterior row; the posterior and anterior rows of tubercles close to the suture line. Just beneath the curve on the bottom of the last whorl appears a 6th row of tubercles. Lines of growth distinct, fine and extending obliquely across the whorl. Suture distinct. Aperture oval and drawn into a twisted anterior canal.

Dimensions: Length 20 mm., width at base 5 mm., spiral angle 13° , sutural angle 16° .

Locality: From a clay bed in the Glen Rose 1.4 miles north of Dripping Springs.

Cerithium simondsi

Plate IV Figure 2

Description: Shell elongate, turreted, very slender. Whorls many; not increasing greatly in size; slightly broader than high; over-lapping in a stair-step arrangement; ornamented with four rows of tubercles and four thin, raised ridges arranged alternately, beginning first with a row of large vertically elongate tubercles close to the posterior margin, followed successively by a ridge, a smaller row of tubercles, a ridge, a second row of tubercles, a ridge, a third row of tubercles and finally another ridge on the anterior margin of the whorl. Sides of the whorl straight, between the posterior rows of tubercles, which form large abrupt ridges at the suture line. Suture indistinct.

Dimensions: Width at base 7 mm., length 30 mm., spiral angle 11° , sutural angle 13° .

Locality: From the Glen Rose at Cow Creek above B. M. 848.

Cerithium bullardi

Plate IV Figure 5

Description: Shell elongate, slender. Whorls slightly broader than high, not increasing rapidly in size; sides practically straight, raised very slightly on the posterior margin; ornamented with six rows of tubercles arranged with a row of large, vertically elongate tubercles on the posterior side close to the suture line, then a row of smaller rounded tubercles followed by four rows of still smaller tubercles. Suture distinct. Aperture nearly circular.

Affinities: This species differs from Cerithium simondsi in having fewer bands of tubercles, a smaller spiral angle, a larger sutural angle, and it lacks the stair-step appearance in having less prominent posterior ridges than the latter.

Dimensions: Width at base 1 cm., spiral angle 7° , sutural angle 19° .

Locality: From the Glen Rose at Cow Creek above B. M. 848.

Locality Cerithium blancoensis n. sp. Pleasant Valley

crossing on the Plate IV and Figure 11 Cranes Mill spring.

Description: Shell elongate, small. Whorls 8-10 in number; broader than high; not increasing rapidly in size; the ornamentation consisting of four revolving rows of Cerithium plummerae or Sanctae crucis Pictet and Campiche tubercles on the whorls near the apex. The posterior row is prominent, slightly elongate vertically, spaced about 1 mm. from the suture line; the second and third rows smaller and less prominent; anterior row larger, very close to the suture. In successive whorls the posterior row is farther and farther from the suture line until it reaches the middle of the whorl; the tubercles become more than 1 mm. in length and slope away from the aperture at an angle of about 60° . The second and third rows become less and less prominent until they disappear entirely in about the fifth or sixth whorl. The tubercles of the anterior row become larger and more elongate, but never reach the size of those of the posterior row. They slope toward the aperture with an angle of about 60° . The lines of growth are chevron shaped, passing through both the posterior and anterior rows of tubercles. Aperture nearly circular. Suture distinct. Dimensions: Width at base 15 mm., length 40 mm., spiral angle 20° , sutural angle 7° .

Locality: From the Glen Rose above Pleasant Valley, crossing on the Blanco River and also at the Cranes Mill spring. Locality: Cow Creek, crossing above B. M. 848.

Cerithium plummerae cfr Sanctae crucis Pictet and Campiche

Plate

IV

Figure 6

Description: Shell elongate. Whorls about 10 in number, broader than high, not increasing rapidly in size, ornamented with a single row of vertically elongate ridges close to the suture line on the posterior side of the whorl; a row of smaller nodes on the anterior part which are covered by the overlap of the next whorl, being visible only on the last formed whorl, and lines of growth which begin on the anterior ends of the elongate ridges, curve broadly backwards and then swing forward slightly beyond the perpendicular extension of the ridges at which they originated. Whorls overlapping, forming a stair-step arrangement with steeply sloping shoulders. Suture distinct.

Affinities: This species resembles C. Sanctae crucis Pictet and Campiche. but has a greater spiral angle and more curving lines of growth.

Dimensions: Width at base 16 mm., length 5 or 6 cm., spiral angle 16° , sutural angle 16° .

Locality: Cow Creek, crossing above B. M. 848.

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I HAVE

PLATES

PLATE I

Figures--

1. Nerinea comalensis n. sp.
 - a. Side view of holotype. x 1.
 - b. View of holotype showing aperture and plaits. x 1.
2. Nerinea hancockensis n. sp.
 - a. Side view of holotype. x 1.
 - b. Section showing plaits of holotype. x 1.
 - c. Side view of paratype. x 1.



1a



1b



2a



2c



2b

PLATE II

Figures--

1. Nerinea roemeri n. sp.
 - a. Side view of holotype. x 1.
 - b. Section of paratype showing plaits. x 1.
2. Nerinea simondsi n. sp.
 - a. Side view of holotype. x 1.
 - b. Section of holotype showing plaits. x 1.
3. Nerinea boernensis n. sp., side view of holotype. x 2.5.



1b



1a



3



2a



2b

PLATE III

Figures--

1. Nerinea cfr circumvoluta Cragin.
 - a. Side view. x 1.
 - b. Side view. x 2.5.
2. Nerinea guadalupae n. sp.
 - a. Side view of holotype. x 1.
 - b. Section of holotype showing plaits. x 1.
3. Nerinea pedernalis n. sp.
 - a. Side view of holotype. x 1.
 - b. Section of paratype showing plaits. x 1.
4. Nerinea sellardsi n. sp., side view of holotype. x 2.5.
5. Nerinea texana Roemer. x 1.
6. Nerinea cuyleri n. sp., side view of holotype. x 2.5.



2a



1a



2b



3a



1b



3b



4



5



6

PLATE IV

Figures--

1. Cerithium blancoensis n. sp.
 - a. View of holotype showing aperture. x 2.5.
 - b. View of holotype showing aperture. x 1.
 - c. Side view of paratype. x 1.
 - d. Side view of paratype. x 1.
2. Cerithium simondsi n. sp.
 - a. Side view of holotype. x 1.
 - b. Side view of holotype. x 2.5.
3. Cerithium gardnerae n. sp., side view of holotype.
x 2.5.
4. Cerithium haysensis n. sp., side view of
holotype. x 2.5.
5. Cerithium bullardi n. sp., side view of holotype.
x 2.5.
6. Cerithium plummerae n. sp., cfr Sanctae crucis
Pictet and Campiche. x 1.



5



1c



1a



1d



6



3



2b



4



2a



1b